Patent claims

1. Injection pump for application of highly viscous media that have to be applied with pressure, in particular during percutaneous vertebroplasty, in which a piston system with grip ends to take up bone cement is provided in a piston, **characterised in that** a piston rod (6) is rigidly arranged at a piston rod grip (7) of the Injection pump (8) and the distal end of the rigid piston rod (6) is provided with a flexible piston rod (9) to the distal end of a pump body (3) with an end piston head (11), where the pump body (3) is fastened at the proximal end at a grip (5) of the Injection pump (8).

2. Injection pump according to claim 1, **characterised in that** the length of the rigid piston rod (6) being dimensioned in such manner that the rigid piston rod (6) remains in the pump body (3) when the piston rod (6) is pulled out through the grip (5) by means with the piston rod grip (7).

3. Injection pump according to claim 1, **characterised in that** the pump body (3) is flexible or ductile with preferable use of a plastic material for the pump body (3).

4. Injection pump according to claims 1 and 3, **characterised in that** the pump body (3) has a rigidly bent shape.

5. Injection pump according to claim 3, **characterised in that** the flexible piston rod (9) is matched to the chose rigid deformation of the pump body (3).

6. Injection pump according to claims 3 and 4, **characterised in that** the flexible piston rod (9) is matched to the shape of the pre-formed pump body (3).

7. Injection pump according to claims 1, 5 and 6, **characterised in that** the flexible piston rod (9) is fitted at its end with a relatively soft or flexible material, preferably a plastic material.

8. Injection pump according to claim 1, **characterised in that** a piston head (11) is arranged in the pump body (3) at the distal end of the flexible piston rod (9), with sealing rings (13) between piston head (11) and pump body (3) to create a suction effect when pulling out the piston rods (6 and 9) in proximal direction.

9. Injection pump according to claim 1, **characterised in that** a hose bracket sleeve (1) with an attached rotatable male LuerLock (2) at the distal end of the pump body (3).

10. Injection pump according to claim 9, **characterised in that** a nozzle (21) is screwed to the rotatable male LuerLock (2) to take up highly viscous media from a respective vessel which nozzle (21) can be unscrewed after absorption of such highly viscous media.

11. Injection pump according to claim 8, **characterised in that** the piston head (11) at the flexible piston rod (9) has a centred venting boring (16), with the rear section of the boring (16) being equipped with an air-permeable filter, preferably of foam material or cellulose (14).

12. Injection pump according to claims 8 and 11, **characterised in that** the proximal end of the

centred venting boring (16) in the piston head (11) is provided with a vertical boring (22), which vertical boring (22) is radially covered with a valve hose (15).

13. Injection pump according to claim 9, **characterised in that** the male LuerLock (2) is fitted with a prong (12) to fasten the pump body (3) by radially pressure-forcing the pump body (3) into place.

14. Injection pump according to claim 1, **characterised in that** the pump body (3) is arranged at the grip (5) firmly, rotatable and replaceable.